

REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action.

Status of the Claims

Claims 1-45 are pending. No claims are currently amended. No claims are canceled. No claims are added. No new matter has been added.

Summary of the Office Action

Claims 1-10 and 18-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No. 2002/0113649 to Tambe et al. (hereinafter "Tambe").

Claims 11 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in further view of U.S. Patent Application No. 2002/0090026 to Ashley et al. (hereinafter "Ashley").

Claims 12-17 and 28-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe and Ashley in further view of U.S. Patent Application No. 2002/0061058 to Sommer et al. (hereinafter "Sommer").

Claims 31, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer.

Claims 32-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Tambe and Sommer in further view of Ashley.

Response to Rejections under 35 U.S.C. § 102(e)

The Office Action rejected claims 1-10 and 18-26 under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully requests withdrawal of these rejections because the cited reference fails to disclose all of the limitations of the claims.

CLAIMS 1-10

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully submits that claim 1 is patentable over the cited reference because Tambe does not disclose all of the limitations of the claim. Claim 1 recites:

A system for improving transmission of digital subscriber line (DSL) signals over a local loop, the system comprising:
a loop extender capacitively coupled to the local loop, the loop extender including
a plurality of upstream complex impedances coupled in parallel,
a plurality of downstream complex impedances coupled in parallel,
a first upstream filter/amplifying element coupled to the plurality of upstream complex impedances via a **first switch**, and
a first downstream filter/amplifying element coupled to the plurality of downstream complex impedances via a **second switch**.
(Emphasis added).

In response to Applicant's previous remarks, the Office Action states, in part:

Tamble et al disclose: "Preferred embodiments of the invention can be identified one at a time by selecting a value for R or C and then collecting frequency response data while the other variable (C or R) is swept across a range" [Para: 0062]. Clearly, **selecting a value for R or C in the complex impedance, as shown in Fig. 6, is equivalent to selecting one set of complex impedance from a multiple set of complex impedances.** This is because one specific value of R or C determines one specific set of complex impedance as shown in Fig. 6. Thus, Tamble et al disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances, as recited in the claim.

Office Action, January 19, 2006, p. 2 (there are two sheets numbers as page 2) (sic all) (underline in original) (bold added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because Tambe fails to disclose all of the limitations of the claim. In particular, Tambe does not disclose a loop extender including a plurality of upstream complex impedances coupled in parallel and a plurality of downstream complex impedances coupled in parallel. Additionally, Tambe does not disclose first and second switches coupled as recited in the claim.

As Applicant described in the previous response, Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses

modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The modified load coils, shown in Figure 6, are interspersed with the DSL repeaters on a DSL loop. Tambe, para. 0062. The DSL repeater, embodiments of which are shown in Figures 4 and 5, includes load coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. Tambe, Fig. 4. The DSL Repeater is also known as a loop extender because the amplifiers introduce gain in the DSL signals to extend the transmission range of the DSL signals. Tambe, para. 0030. The DSL Repeaters of Figures 4 and 5 do not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe, shown in Figure 6, include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first and second circuit portions apparently act to filter noise from the downstream and upstream DSL signals. More specifically, the first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059.

The current Office Action characterizes the first and second circuit portions as complex impedances. In particular, the combination of the capacitor 641 and resistor 651 form one complex impedance. Likewise, the combination of the capacitor 642 and resistor 652 form one complex impedance. Therefore, Tambe merely discloses one complex impedance in the downstream portion and one complex impedance in the upstream portion. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances. Given that Tambe only discloses one upstream complex impedance and one downstream complex impedance, Tambe cannot and does not disclose a plurality of upstream complex impedances coupled in parallel and a plurality of downstream complex impedances coupled in parallel.

The Office Action attempts to construe Tambe as disclosing a plurality of complex impedances by relying on the teaching that values for the resistors and capacitors may be selected to identify a preferred embodiment of the load coil circuit 600. However, the reference from Tambe is specifically directed to the design of the load coil circuit 600 and not to an implementation of the load coil circuit 600. Indeed, every circuit is capable of flexibility at the design stage when component values are selected to provide a particular response, but this flexibility of design is not represented in an actual implementation of the load coil circuit 600, which uses a specific combination of fixed resistors and capacitors. Tambe does not disclose any implementation having variable resistors and capacitors, or that a user can select among different combinations of resistors and capacitors during operation of the load coil circuit 600. Tambe merely states that the load coil circuit 600 is designed to provide a particular, fixed response. Having a fixed design with a single complex impedance prevents customization of the load coil circuit 600 in the field to compensate for conditions of an actual implementation.

Where the actual implementation of the load coil circuit 600 disclosed by Tambe only includes a single upstream complex impedance, Tambe fails to teach a plurality of plurality of upstream complex impedances coupled in parallel. In fact, even if Tambe discloses the possibility of selecting different combinations of resistors and capacitors during the design of the load coil circuit 600, those potential combinations are not and cannot be coupled in parallel because only a single complex impedance is disclosed in the actual implementation. Similarly, where the actual implementation of the load coil circuit 600 disclosed by Tambe only includes a single downstream complex impedance, Tambe fails to teach a plurality of downstream complex impedances coupled in parallel, because the potential design combinations are not and cannot be coupled in parallel. Therefore, Tambe fails to disclose a plurality of plurality of upstream complex impedances coupled in parallel and a plurality of downstream complex impedances coupled in parallel.

In contrast, claim 1 recites “a plurality of upstream complex impedances coupled in parallel” and “a plurality of downstream complex impedances coupled in parallel.” For the reasons stated above, Tambe fails to disclose all of the limitations of claim 1. In particular, Tambe does not disclose a loop extender including a plurality of upstream complex impedances coupled in parallel and a plurality of downstream complex

impedances coupled in parallel. Additionally, for similar reasons Tambe fails to disclose first and second switches coupled to the plurality of upstream and downstream complex impedances. Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 1 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 1 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 2-17 depend from independent claim 1, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 2-17 are also patentable over the cited reference. Accordingly, Applicant requests that the rejection of claims 2-10 under 35 U.S.C. § 102(e) and the rejection of claims 11-17 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 18-30

Claim 18 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully submits that claim 18 is patentable over the cited reference because Tambe does not disclose all of the limitations of the claim. Claim 18 recites:

A method for improving transmission of digital subscriber line (DSL) signals over a local loop, comprising the steps of:

configuring a loop extender with

a plurality of upstream complex impedances coupled in parallel;

a plurality of downstream complex impedances coupled in parallel;

a plurality of upstream filter/amplifying elements coupled in parallel and coupled in series with the plurality of upstream complex impedances; and

a plurality of downstream filter/amplifying elements coupled in parallel and coupled in series with the plurality of downstream complex impedances.

(Emphasis added).

In support of the rejection, the Office Action relies on the same statements reproduced above.

Applicant respectfully disagrees with the Office Action's characterization of the prior art because Tambe fails to disclose all of the limitations of the claim. In particular, Tambe does not disclose a loop extender including a plurality of upstream complex impedances coupled in parallel and a plurality of downstream complex impedances

coupled in parallel. Moreover, Applicant respectfully asserts independent claim 18 is not anticipated by Tambe for similar reasons to those stated above in regard to independent claim 1.

Here, although the language of claim 18 differs from the language of claim 1 and the scope of claim 18 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 18 in the context of the plurality of upstream complex impedances coupled in parallel and the plurality of downstream complex impedances coupled in parallel. Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 18 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 18 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 19-30 depend from independent claim 18, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 19-30 are also patentable over the cited reference. Accordingly, Applicant requests that the rejection of claims 19-26 under 35 U.S.C. § 102(e) and the rejection of claims 27-30 under 35 U.S.C. § 103(a) be withdrawn.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 31, 44, and 45 under 35 U.S.C. § 103(a) as being unpatentable Tambe in view of Sommer. The Office Action rejected claims 11 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Ashley. The Office Action rejected claims 12-17 and 28-30 under 35 U.S.C. § 103(a) as being unpatentable over Tambe and Ashley in view of Sommer. The Office action rejected claims 32-43 under 35 U.S.C. § 103(a) as being unpatentable over Tambe and Sommer in view of Ashley. Applicant respectfully requests withdrawal of these rejections because the combination of cited references fails to teach or suggest all of the limitations of the claims.

CLAIMS 31-43

Claim 31 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 31 is patentable

over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 31 recites:

A system for improving transmission of digital subscriber line (DSL) signals over a local loop, the system comprising:

selectable line termination and equalization (SLTE) DSL amplification circuitry capacitively coupled to the local loop via bypass relay switches;

a plain old telephone service (POTS) loading coil adapted to be coupled to the local loop for improving transmission of POTS band signals over the local loop; and

a diagnostic/control unit coupled to the local loop for receiving and processing control signals from a central office, coupled to the bypass relay switches via a bypass relay for controlling the bypass relay switches, and coupled to the SLTE DSL amplification circuitry via a plurality of switch control lines for controlling the SLTE DSL amplification circuitry. (Emphasis added).

In support of the rejection, the Office Action states, in part:

selecting a value for R or C in the complex impedance, as shown in Fig. 6, is equivalent to selecting one set of complex impedance from a multiple set of complex impedances. This is because one specific value of R or C determines one specific set of complex impedance as shown in Fig. 6. Thus, Tambe et al disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances for selectable line termination and equalization (SLTE) amplification circuitry.

Office Action, January 19, 2006, p. 3 (there are two sheets numbers as page 3) (sic all) (underline in original) (bold added).

Applicant respectfully asserts independent claim 31 is not anticipated by Tambe or Sommer for similar reasons to those stated above in regard to independent claim 1. In particular, Tambe and Sommer, either alone or in combination, do not teach or suggest selectable line termination and equalization (SLTE) amplification circuitry. Additionally, the Office Action fails to provide a motivation to combine the references.

Here, although the language of claim 31 differs from the language of claim 1 and the scope of claim 31 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 31 in the context of the selectable line termination and equalization (SLTE) amplification circuitry. Additionally, Sommer does not cure the lack of disclosure by Tambe as to the selectable line termination and equalization (SLTE) amplification

circuitry. Given that the combination of cited references fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 31 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 31 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 32-43 depend from independent claim 31, which is patentable over the cited references, Applicant respectfully submits that dependent claims 32-43 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 32-43 under 35 U.S.C. § 103(a) be withdrawn.

CLAIM 44

Claim 44 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 44 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 44 recites:

A method for improving transmission of digital subscriber line (DSL) signals over a local loop, comprising the steps of:
transmitting control signals and DSL signals over the local loop;
providing DSL signal amplification via **selectable line termination and equalization (SLTE) DSL amplification circuitry** coupled to the local loop;
receiving the control signals via a diagnostic/ control unit (DCU) coupled to the local loop;
processing the control signals;
selecting SLTE DSL amplification circuitry switch states in accordance with the processed control signals;
sampling DSL signals within the SLTE DSL amplification circuitry;
processing the sampled DSL signals;
selecting SLTE DSL amplification circuitry switch states in accordance with the processed sampled DSL signals to improve SLTE DSL amplification circuitry performance; and
uncoupling SLTE DSL amplification circuitry from the local loop in accordance with the processed control signals.
(Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above.

Applicant respectfully asserts independent claim 44 is not anticipated by Tambe or Sommer for similar reasons to those stated above in regard to independent claim 1. In particular, Tambe and Sommer, either alone or in combination, do not teach or suggest

selectable line termination and equalization (SLTE) amplification circuitry. Additionally, the Office Action fails to provide a motivation to combine the references.

Here, although the language of claim 44 differs from the language of claim 1 and the scope of claim 44 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 44 in the context of the selectable line termination and equalization (SLTE) amplification circuitry. Additionally, Sommer does not cure the lack of disclosure by Tambe as to the selectable line termination and equalization (SLTE) amplification circuitry. Given that the combination of cited references fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 44 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 44 under 35 U.S.C. § 103(a) be withdrawn.

CLAIM 45

Claim 45 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 45 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 45 recites:

A system for improving transmission of digital subscriber line (DSL) signals, the system comprising:
 means for transmitting control signals and DSL signals;
 means for providing selectable DSL signal amplification coupled to the means for transmitting;
 means for receiving the control signals coupled to the means for providing DSL signal amplification;
 means for processing the control signals to generate processed control signals;
 means for improving performance of the means for providing DSL signal amplification in accordance with the processed control signals;
 means for sampling the DSL signals within the means for providing selectable DSL signal amplification;
 means for processing the sampled DSL signals to generate processed sampled DSL signals;
 means for improving performance of the means for providing DSL signal amplification in accordance with the processed sampled DSL signals; and
 means for uncoupling the means for providing DSL signal amplification from the means for transmitting in accordance with the processed control signals.

(Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above.

Applicant respectfully asserts independent claim 45 is not anticipated by Tambe or Sommer for similar reasons to those stated above in regard to independent claim 1. In particular, Tambe and Sommer, either alone or in combination, do not teach or suggest means for providing selectable DSL signal amplification. Additionally, the Office Action fails to provide a motivation to combine the references.

Here, although the language of claim 45 differs from the language of claim 1 and the scope of claim 45 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 45 in the context of the means for providing selectable DSL signal amplification. Additionally, Sommer does not cure the lack of disclosure by Tambe as to the means for providing selectable DSL signal amplification. Given that the combination of cited references fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 45 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 45 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

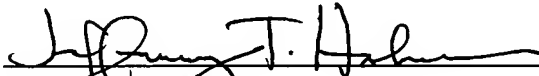
It is respectfully submitted that in view of the remarks set forth herein, the rejections have been overcome. If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Jeffrey Holman at (408) 720-8300.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

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